MTC Transit Connectivity Study

Technical Memorandum 3A

Results of the Prototype Transit Hub Site Reviews

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INTRODUCTION

This technical memorandum presents the preliminary findings of the prototype transit hub site reviews conducted in Task 3. Five transit hubs were identified for this evaluation from the network of regional transit hubs developed in Task 2. The original Transit Connectivity Study conducted by MTC identified the 18 most significant transit hubs in the region. In Task 2, the consultant team reviewed this list and the methodology used to select the hubs, and suggested revisions based on that review. The final network of regional transit hubs was expanded to include a total of 21 hubs, selecting at least one hub in each of the 9 Bay Area Counties. The prototype hubs were selected to represent different geographic areas of the region, to represent various location types (i.e. urban, suburban and downtown) and to represent each of the four transit hub types identified during the process, including:

- Type A: Urban Hubs Buses Loaded On-street
- Type B: Urban Hubs Off-street Loading:
- Type C: Bus Only Hubs
- Type D: BART with Off-street Bus Loading

The five selected prototype stations are:

- San Rafael Transit Center (Type C);
- San Jose Diridon Station (Type B);
- El Cerrito Del Norte BART Station (Type D);
- San Francisco Ferry Terminal/Embarcadero BART Station (Type A); and
- Dublin/Pleasanton BART Station (Type D).

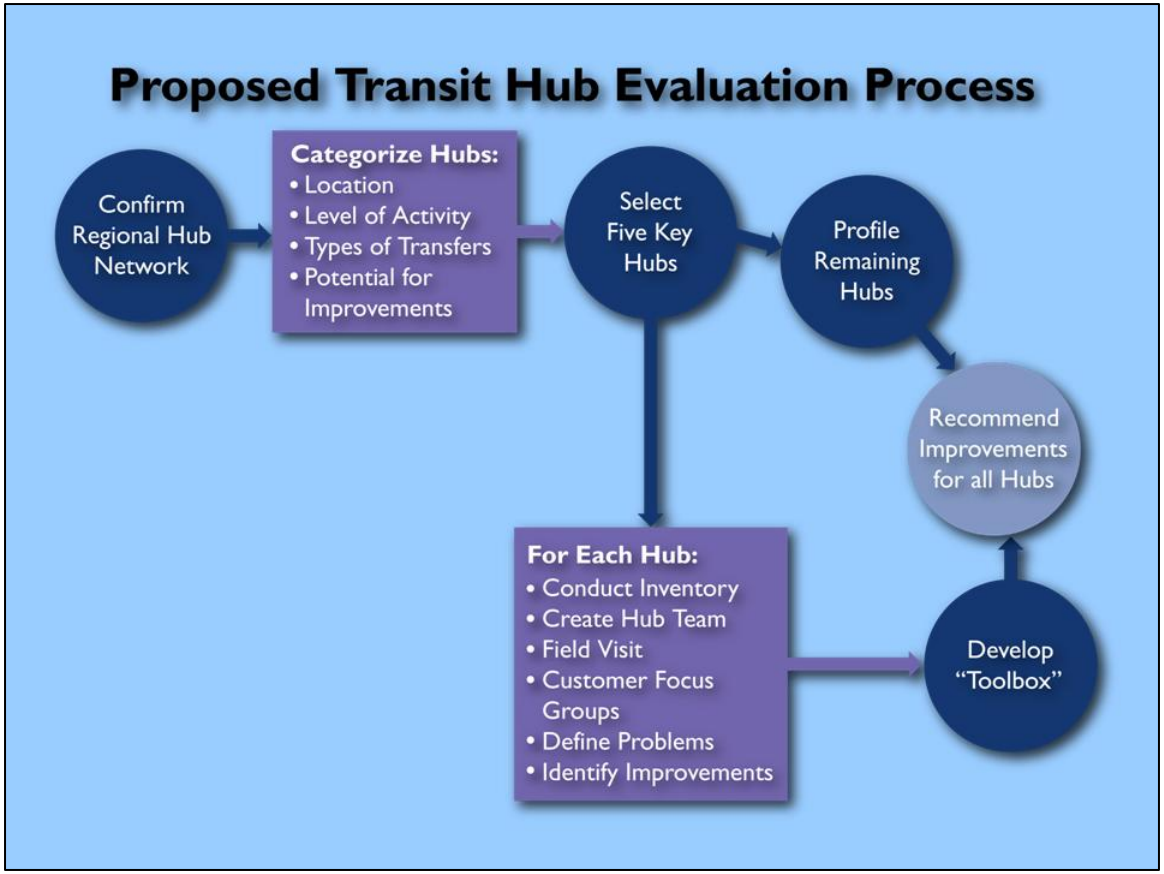
An evaluation of each of the five prototype hubs will be conducted to ascertain its current usefulness as a transit hub, and to confirm, from a customer's point of view, perceived deficiencies and opportunities for improvement. The evaluation will consist of the following steps:

- Establishing a local hub task force of technical staff from the transit providers that serve the hub as well as staff from the jurisdiction(s) where the hub is located and representatives of other key stakeholders such as property owners, local social service or special interest groups, and advocacy groups.
- Conducting an on-site inventory of the transit hub to quantify its current characteristics.
- Conducting a site review with the hub task force to review current conditions, review and identify problems and opportunities and develop recommendations.

San Jose Diridon Station

El Cerrito del Norte BART Station

Task Force at San Francisco Ferry Terminal



- Convening a customer focus group consisting of persons who use or could use the hub for their normal travel to solicit their opinions, experiences, perceptions, preferences and priorities related to all aspects of their use of their target hub site.
- Developing recommended connectivity improvements for each of the prototype hubs. Based on these findings, the consultant team will assemble a "Connectivity Toolbox, which is intended to provide strategies and solutions to address problem areas identified during the evaluations. The toolbox, in turn, can also include guidelines as to how each improvement would be specifically developed and refined for application at other similar transit hubs throughout the region.

As mentioned above, this technical memorandum presents the preliminary findings of the prototype transit hub site reviews. These preliminary findings will be used in part to guide the development of materials for the focus group meetings and, in conjunction with the results of the focus groups as well as consultation with other stakeholder groups, will be used to formulate recommended connectivity improvements. It is important to note that the thrust of this effort is to gain an understanding of the customer's perceptions of the quality of the hub operations and layout. The recommendations for each of the hubs and the connectivity toolbox will not be formalized until the customer research and other related elements of the project are complete. The format of the site reviews is described below.

METHODOLOGY FOR PROTOTYPE TRANSIT HUB SITE REVIEWS

For each of the prototypes, a transit hub task force was created including representatives of the transit and shuttle operators at the hub as well as other key stakeholders for that location. A task force site review was scheduled at each transit hub in the months of May and June, 2005, during the AM peak hours of operation (7 – 9 AM).

Each site review began with a short briefing on the project and a general discussion of how transit services operate at the station. Each participant was asked to provide a brief description of operations and issues related to the agency they represent. This discussion was followed by a 'walk about' to observe first hand how the facility operates both for transit operators and passengers. The 'walk about' focused on issues concerning the following topics:

- **Wayfinding Signage** – Wayfinding signage provides a critical informational link for transit passengers to help them navigate their way to and from a stop or station. It also provides needed information for circulation within the transit facility to enable them to make a transfer from one operator to another.
- **Customer Use of Transit Information** – Transit information, both local and regional, provides needed routing and schedule information for the passenger to make connections to their desired destination. Accurate information is especially important when transferring between transit operators. Regional transit information is available from maps, schedules and brochures which can be posted in the transit hub itself. Pre-trip planning information is also available from '511' either by phone or via the internet at 511.org.
- **Physical Connections** – The physical layout of a transit hub will affect how the facility operates and how successfully it can provide transit service and connectivity. This topic will consider various issues from how buses enter and exit a station to how passengers transfer from bus to rail platforms.
- **Amenities** – The process of identifying connectivity related improvement is likely to also identify other types of desirable improvements such as weather protection, security personnel and related equipment, restrooms, street furniture and additional service information by audio announcements. Opportunities to purchase transit tickets or passes and other retail vendors selling snacks, flowers, newspapers or dry cleaning services are also included.
- **Scheduling** – The coordination of connecting transit services is an important issue in the study of transit connectivity. Perceived or real disconnects in scheduling is a major source of customer dissatisfaction. The dynamics and economics of transit operation make seamless time-coordinated transfers difficult to achieve. However, through the use of technology and

San Rafael Transit Center

Bus platform at Dublin/Pleasanton BART Station

Muni 'F' Line platform at San Francisco Ferry Terminal/Embarcadero Station

improved operating practices and policies, it is possible to enhance the connectivity of system-to-system transfers.

- **Real-Time Transit Information** – Real-time transit information allows customers to know exactly when their next bus or train is arriving or departing. This tool is an important component of the Bay Area transit connectivity. Providing real-time and accurate transit information can not only enhance transit usage, but can also provide a more accurate means for the public to review transportation alternatives in the area, which could result in mode shifts to public transportation.
- **The 'Last Mile'** – Many transit trips are not made because of the lack of a convenient linkage to travel destinations beyond walking distance, but relatively close to the transit hub location. The "Last Mile" service concept looks at ways to bridge this gap in the transit network. As the missing link, the "last mile" service can be provided by any combination of bus, shuttle, bicycle, pedestrian, taxi, guaranteed ride home, electric commute alternatives and station cars and car sharing.

Following the 'walk about', Task Force members reconvened at a nearby meeting location for a debriefing session to summarize observed problems, determine needs for improved connectivity and discuss preliminary potential solutions. This technical memorandum presents the preliminary findings of the transit hub task force site reviews. Each observed issue or problem is followed by a description of the needs for improved transit connectivity. These problems and needs will be explored further in the focus group discussions and further technical reviews to develop recommended connectivity improvements.

A summary of the key findings emerging from the site evaluations is described below. Preliminary findings specific to each site are included as Appendix A and maps of the transit hubs are included in Appendix B to this technical memorandum.

Bicycle Parking at Ferry Terminal

Embarcadero Bikestation (behind faregates)

SUMMARY OF KEY FINDINGS

Perhaps the most significant finding of the prototype transit hub site reviews was the realization of how interconnected the many issues are to enhance transit connectivity. For example, if bus service is kept simple, operating on regular headways throughout the day, passengers will find it easier to become familiar with bus schedules, and the challenge of providing complicated daily schedules can be reduced. The assignment of bus routes to corresponding bus bays in an intuitive way also can simplify wayfinding needs and minimize dwell times necessary for bus transfers. The provision of amenities can enhance a passenger's comfort and convenience while waiting for a transit connection, and effective scheduling practices can reduce the time the passenger must wait for the transfer.

The connectivity problems, needs and possible improvement measures that have been identified from the hub site reviews are considered preliminary, and will be further defined and prioritized during upcoming passenger focus groups, as well as reviewed with other stakeholder groups.

Wayfinding Signage

The field review of the five prototype hubs uncovered certain common wayfinding signage deficiencies and problems, regardless of the type of interagency service connections or hub physical conditions. The field evaluation comments and observations identify problems as well as connectivity needs and potential "ideas" for improvement to facilitate connections. Key preliminary findings by those participating in the hub evaluations are summarized below.

- **Better identification of the hub facility** - Better hub facility identification should improve connection wayfinding by making the entrance to the service (via pedestrian or vehicle) more conspicuous and promoting awareness of the presence of transit within the community or urban setting. The use of the service logos, BART, Muni, Golden Gate Transit, AC Transit, etc., would reinforce the branding and identity of each service. Entrance signs could incorporate the localized bus service under the heading of the primary regional transit service at each hub – to promote awareness of multiple transit services available at some hubs.
- **Better wayfinding signage within hubs** - One way to make the transferring experience less confusing is to simply provide better wayfinding signage within the hub to the service choices available. This need was observed as all the transit hubs visited but is particularly important for guidance between transit modes such as at the San Francisco Ferry Terminal/Embarcadero Station for connections between ferry, bus, BART, Muni Metro and cable car. San Jose Diridon Station has similar needs for connections between rail and bus and at El Cerrito del Norte BART and Dublin/Pleasanton BART for connections between BART and bus. Even at the San Rafael Transit Center, limited to bus-to-bus connections, better directional signage between the platforms is

Muni Cable Car terminus and loading zone


Amtrak Thruway bus at San Francisco Ferry Terminal

Muni Next Train Signage at Agent's Booth

needed to guide transferring passengers to the correct platform and route. The use of service logos would greatly enhance the generic messages currently used on many of the signs.

- **Bus stop signage** - In the suburban BART stations, better guidance to the respective connection bus stops would be helpful. While some stations, e.g., BART El Cerrito del Norte, have diagrams (with magnetic strips identifying bus stops), these maps are often incomplete or confusing and the customers may find it difficult to orient themselves to the outside configuration of the bus bay/stops.

  The problem of finding the connecting bus stop is much more complex in an urban setting, where the bus stop location is not always obvious and blends into the streetscape. Here the customer is primarily dependent upon wayfinding signage. Fortunately, in the Ferry Terminal/Embarcadero Station hub, there appears to be an opportunity to integrate directions to Muni (and other) stops, utilizing the existing city pedestrian wayfinding signage system.

- **Better identification of bus stops** - The use of service logos and colors would help distinguish various bus services at hubs and in downtown San Francisco. In this way, the bus stop signs will reinforce the vehicle identification and service identity colors making them easier to find. This principle of wayfinding has been successfully utilized in the corporate and commercial field for years, e.g., rental car companies often use their logos on airport wayfinding signage.

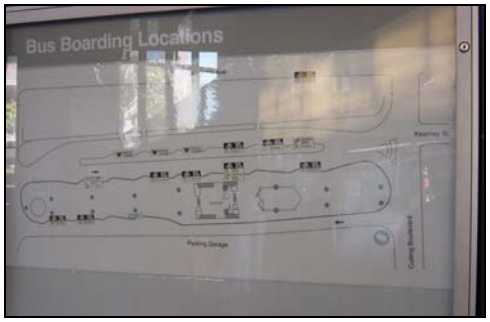
Customer Use of Transit Information

The field site visits revealed a number of issues specific to customer use of transit information located at the hubs. These are described below.

- **On-site transit displays** – Most transit hubs included displays of existing printed maps, schedules, and information about individual services, which the customer has to decipher. Generally the displays consist of maps that show a macro view, whereas the customer's immediate need may be more localized. Consideration should be given to the development of standards for the presentation of information, guidance that responds to the customer's wayfinding needs, and opportunities specific to each hub.
  - WHAT service do I use for the connection I need to reach my destination?
  - WHERE do I find the nearest stop?
  - HOW do I pay for the connecting service, when, and how much will it cost?
  - WHEN does the connecting service arrive?

Vallejo Ferry loading

Regional transit information at San Rafael Transit Center



Bus boarding display at El Cerrito del Norte BART Station

The format of this information may vary between the hubs based upon transit connections specific to that hub. The information may be in the form of a destination locator matrix or a simplified map with alphabetized listing of points of interest and trip generators. At the Ferry Terminal/Embarcadero hub, for example, a special Visitor's Transit Map may be appropriate for indicating not only an alphabetized listing of common trip generators, including hotels, but also the Muni routes serving tourist destinations. These information aids must be easy to update and economical to produce.

- **Pre-trip planning information** – With the advent of '511', it is much easier to plan a transit trip in advance especially when using different transit operators. Use of '511' either by phone or on the internet at 511.org makes it possible to disseminate comprehensive regional transit information for all agencies and modes. The addition of transit hub maps to the '511' website would enable passengers to preview how to make connections at the transit hub. Although the '511' service is readily available from the home or office, connection to this information source was not provided at the transit hubs themselves.
- **"Real-Time" transit information displays** - The use of "real-time" transit information displays is a growing trend because customers appreciate the information these displays provide, and they reduce passenger anxiety about not knowing when the next bus, ferry or train will arrive or depart. For the connecting passenger, these displays would be even more useful if also deployed on-route between their connections, e.g., the BART passenger would know exactly when his Muni connection will arrive as soon as he exits the BART turnstile within the Embarcadero Station. Likewise, transit information provided directly on vehicles, particularly on ferry boats and trains, will allow passengers to preplan their needed connections and reduce the transfer time to their destination.

San Francisco Embarcadero Station
Muni Platform from main ticket level. BART is located one level below

Bus facility location map at Dublin/Pleasanton BART Station

Physical Connections

The five prototype transit hubs were selected because they represent the range of transit connectivity sites available in the San Francisco Bay Area, i.e. bus to bus, rail to bus, ferry to bus. In addition, they represent areas within downtown, urban and suburban development. Some of the transit hubs are compact; others are very spread-out. In general, the connections between similar transit modes, for example the San Rafael Transit Center with only bus service, are more convenient for the customer in that they require less distance to travel. Because of the facilities required to accommodate rail and ferry service, these connections require greater walking distances. Few similarities were identified respective to physical connections at the prototype transit hubs, largely due to the variety of facilities both from a design and operational standpoint. Those that were observed include:

- Bus circulation entering and exiting the stations could be improved to provide a more direct route thereby reducing travel times and streamlining schedules.


Transit information at San Jose Diridon Station

- Weather protection for traveling between loading areas often does not exist or is not expansive enough to provide adequate protection.

Amenities

Weather protection at bus, train and ferry loading areas often does not exist or is inadequate to protect against wind and driving rain. Weather protection between loading platforms often is not available making transfers from one mode to another or between bus platforms uncomfortable. Seating is often inadequate at transit stops. Audio announcements of bus and train arrivals and departures were made at some facilities although it was often difficult to hear and understand. Restrooms are available at all the transit hubs visited although the facilities at Embarcadero BART are currently closed for security reasons. Several of the transit hubs had booths to buy single-ride tickets and passes. Many hubs also had snack shops, flower stands, newspaper kiosks and a dry cleaner store.

Scheduling

At many transit stations, service is operated by more than one provider. Most providers run on a fixed schedule and with some on a "pulse" schedule, such as at the San Rafael Transit Center. With a pulse schedule, all buses arrive and depart at the transit hub at the same time to facilitate bus-to-bus transfers. It was found during the site reviews that many of the schedules do provide for timed-transfers even between different transit modes such as bus and rail. Because the transit services at a hub often operate at different headways, it is not always possible to coordinate the schedule of all routes and facilitate a timed-transfer. Long transfer walking distances at some hubs, such as Dublin/Pleasanton BART Station, also complicate efficient pulse operations. In addition, each provider is responsible for updating and maintaining their own schedules; agencies often make schedule updates at different times during the year. The process for establishing timed-transfers and updating schedules between operators and the role of '511' in this effort needs to be more fully explored. The following approaches may be useful to this process.

- Communication between operators is key to facilitating schedule coordination.
- Each transit agency should provide the agencies affected by their schedule changes with advance notice when making schedule changes.

Real-Time Information

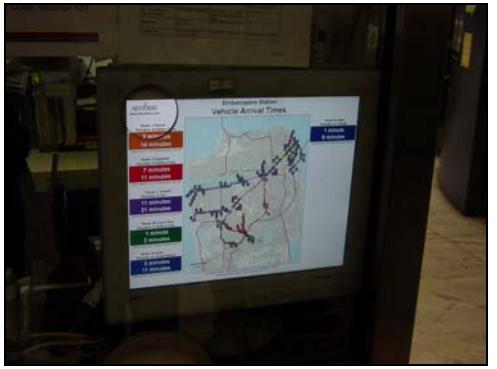
The goals of a real-time program are to provide real-time transit information to the public through a variety of dissemination methods, including 511 phone, 511.org, wireless devices, signage at rail and bus stations, and other innovative mechanisms, and to promote data sharing among transit agencies at transfer hubs to improve schedule coordination.

Gate E for Tiburon and Vallejo Ferries

NextBus sign for AC Transit Route 72

Currently, transit operators in the region are at varying stages of deploying technology to provide real-time transit data. Some operators have implemented Automatic Vehicle Location (AVL) systems, which can be a foundation for passenger information systems. Others have implemented technologies that generate vehicle arrival predictions without relying on AVL.

The Regional Traffic Relieve Plan was established as part of RM2 set aside $20 million for MTC to administer a Real-time Transit Information Grant program. Transit operators receiving RM2 funds are required to transmit their real-time data in a standard format to a regional database. Data will be available from the database for integration into 511 and 511.org for display on signs at transfer points and hubs, and to transit operators for connection protection or other coordination efforts. Recently, MTC staff completed its selection process and has recommended real-time funding be provided to 8 operators, contingent upon approval by the Commission. A goal of this project is to further define potential system enhancements and goals to fully develop a regional real-time transit information program.



Muni NextTrain map at Embarcadero Station


Real-time signs at ticket machines


Bicycle racks at San Rafael Transit Center

The 'Last Mile'

'Last Mile' opportunities at the prototype transit hubs are as varied as the stations themselves. However, many similarities were found during the field reviews in the need for 'last mile' improvements. 'Last Mile' connections differ from the other aspects of transit connectivity which have been previously discussed in that 'last mile' connections are often not under the sole purview of the transit agency or transit hub. For 'last mile' improvements to be implemented, collaboration will be needed between local businesses, government agencies, transit operators, funding agencies and non-profit advocacy groups. Local community planning processes will address 'last mile' connections to regional transit hubs in General Plans, downtown plans, or station-area planning documents. Last mile connections are also dynamic and evolving services, and often incorporate improvements utilizing new and innovative technologies as they become available. Many 'last mile' improvements have started as demonstration projects which, depending upon their success, have or have not been implemented at additional locations. The preliminary findings of the 'last mile' evaluation are summarized below.

- **Pedestrian links and pathways** - Local maps that show major destinations such as downtowns and business, community and government centers are needed as well as wayfinding signage that links these locations to the transit hub. In addition, the pedestrian route out of the transit hub should be strengthened with some type of wayfinding signage; many stations are surrounded with a sea of parking and it is difficult to find surrounding roadways and destinations. Pedestrian safety and comfort levels are enhanced with adequate lighting, well-maintained sidewalks and pathways and ADA-compliant accessible routes.
- **Bicycle parking, routes and pathways** - Bike routes, lanes and pathways are needed on roadways leading to/from the transit hub. For passengers wishing to leave their bicycles at the station,

sufficient bicycle parking is needed utilizing racks, lockers, bikestation and/or other new technologies. Signage for direction to the bikeways and/or to bicycle parking is also necessary.

- **Taxi service** – Although, taxi service is available at each of the prototype transit hubs, additional signage to and at the taxi stop is needed. Taxis generally wait at the station during peak and midday hours but their availability may be more limited at night or during off-peak hours.
- **Shuttle services** – Shuttles are an important aspect of the 'last mile' connection providing convenient and direct service to desired destinations. Unfortunately, shuttles can be expensive to establish and operate and are generally funded by private organizations or through public funding programs. Shuttle connections with the transit hub should be supported with the display of shuttle schedules, routes and contact information. Expansion of shuttle programs should be coordinated with existing feeder bus resource deployment strategies. The location of many of the shuttle stops are not signed and often weather protection is not provided for waiting passengers.
- **Guaranteed ride home programs** – These programs are generally not operated by transit agencies but rather through transportation demand management (TDM) or congestion management programs (CMP) of local governments, employers or institutions. These programs allow flexibility to transit commuters by providing a ride home in case of illness, family emergency or overtime work demands. They are often implemented with the use of taxi service in conjunction with transit, and can provide a valuable last mile service opportunity.
- **Station cars and car sharing** – Car sharing programs are currently available at several BART stations including one location within several blocks of the San Francisco Ferry Terminal/Embarcadero Station transit hub. There are various car sharing type programs; with the program available at BART, program members can reserve a car by the hour for their personal use. The car is picked up and returned to the same location. Other programs share a car between two people with one driving to the station in the morning and back home at night while the other driver uses the car during the day instead of leaving it parked at the station.
- **Electric commute alternatives** – This 'last mile' opportunity includes new innovative technologies utilizing electric vehicles or other sustainable transportation including electric cars, electric shuttles, electric bikes, and electric scooters/segways. Currently there are not such programs available at the prototype transit hubs.

Bicycle Parking at Ferry Terminal

Embarcadero Bikestation (behind faregates)

Ohlone Greenway at El Cerrito del Norte Station

MTC Transit Connectivity Study

Technical Memorandum 3A:
Results of the Prototype Transit Hub Site Reviews

APPENDIX A

Summary of Key Findings

SAN RAFAEL TRANSIT CENTER
RESULTS OF THE PROTOTYPE TRANSIT HUB SITE REVIEW

The transit hub task force site review was held on Thursday May 12, 2005 at 7 AM. Representatives from transit operators and key stakeholder agencies were invited to attend including:

Representatives from:	In attendance
Golden Gate Transit	Yes
Marin County Transit	Yes
Sonoma County Transit	No
City of San Rafael	Yes
County Shuttle Connection (County Health and Human Services)	Yes
Marin Airporter	No
Airport Express	No
Greyhound	No
Grassroots Leadership Network	No

The site review began with a short briefing on the project and a general discussion of how transit services operated at the station. This prototypical hub is representative of a bus-only transit center. The facility provides service for buses and shuttles at four passenger platforms with 18 bus bays as shown in Appendix B, page B-1. Golden Gate Transit (GGT) provides local service within Marin County under contract to Marin County Transit District (MCTD), and regional service to Sonoma, Contra Costa and San Francisco Counties. GGT operates twenty routes through the Transit Center with many of these providing weekday commuter service only. Limited service is available during off-peak hours and weekends. GGT buses are scheduled to pulse at the Transit Center at 30-minute intervals at approximately 0:20 and 0:50 minutes past the hour. The outer edge of Platform A along Heatherton Street serves southbound GGT buses with the inner edge serving GGT buses to the East Bay and to the Canal District in San Rafael. Platform B serves local GGT buses. Platform C serves northbound GGT buses and Platform D serves all the non Golden Gate Transit service buses and shuttles as well as a few GGT bus routes.

Other transit service on Platform D is provided by Greyhound (3 buses a day), Sonoma County Transit, County Shuttle Connection and two airport shuttle services. Sonoma County Transit operates one commuter route to San Francisco each weekday from locations in Sonoma County including a stop at the San Rafael Transit Center. The County Shuttle Connection, which loads on the Tamalpais Avenue side of Platform D is operated by the Marin County Health and Human Services Department and provides service to the County Social Services Building. Marin Airporter provides service to San Francisco International Airport while the Sonoma County Airport Express shuttle serves Oakland Airport.

San Rafael Transit Center

No facility Identification

Displays utilize existing maps and timetables; customer has to figure out connections by wading through information

The facility has a security booth staffed by a security guard (located on Platform B), public restrooms, dry cleaner and coffee shop. GGT ticket books can be purchased at the ticket booth and tickets for the Oakland Airport shuttle are available at the dry cleaner shop.

The following problems or issues were identified during the site review. The associated needs for improved transit connectivity are also included.

Wayfinding Signage

The San Rafael Transit Center is not clearly identified as a major transit hub. Specifically, identification of the facility needs to be more prominent both from the street and for passengers entering by bus. The facility currently lacks a local map of San Rafael identifying key destinations with other route/scheduling information.

1. San Rafael Transit Center is not highly visible from surrounding roadways and land uses.
    - Signage identifying the facility as San Rafael Transit Center is not highly visible from surrounding roadways. Directional signs leading to transit center from key locations in the neighborhood are not provided.
2. The locations of respective loading areas for bus routes utilizing the facility are not clearly delineated.
    - Specifically, The transit center platform maps are difficult to locate, and, once found are difficult to read and quickly understand because of their small size. Platform designations (i.e. Platform A) are difficult to distinguish as the platform labels are mixed with route numbers. It is difficult to distinguish among different transit service providers.
3. Because the same routes load in different places depending upon direction of travel, it is confusing to find the correct loading bay and may result in a passenger traveling the wrong direction on the right bus.
    - Better distinction between some routes, and the fact that the northbound and southbound route stops are on different platforms, is needed. Perhaps the route terminal destination should be more distinctive and northbound/southbound should be included. The location of the loading zone for the opposite direction would also be helpful.
4. Passengers may be e unaware that multiple routes can deliver them to the same destinations. For example, several routes travel between San Rafael and Marin City including routes 70, 71, 80 and 36.; however, Some passengers may use only the bus with which they are most familiar.

Clearer platform identification is needed

Identification/directions to bus routes on adjacent platforms Is not provided

Better operator identification is needed

- One timetable is needed for all routes with the same stops indicating that any of those routes may be taken. Signage to inform passengers that these routes travel to the same destinations and close proximity of loading platforms may also be helpful.

5. Signage, route and schedule information for Platform D is incomplete and not current. Specifically, operators utilizing Platform D are not clearly identified, and information for service to Oakland Airport is not provided at all.
6. The County Shuttle Connection stop is not identified and schedule information is difficult to find and is outdated.
7. Signage for operators no longer providing service (Santa Rosa Airporter) is still posted.
8. The location of a park-and-ride facility 3 blocks away is not identified.

Customer Use of Transit Information

1. Regional transit information is difficult to find, read and is not updated.
   - Regional transit schedules are not kept updated and information on how to obtain the most current information is not provided (i.e. '511' phone or information kiosk). A map of the transit center is not provided on the '511' website at 511.org with other schedule information. Maps showing the local and regional destinations are not available. Maps and schedules that are provided on Platform D are not organized, clearly presented, or current. Bi-lingual schedule information is not available at the boarding areas or on 511.org.
2. Fare information including where to purchase passes and tickets is not available. Although Golden Gate Transit is exploring more efficient and passenger friendly fare payment schemes, currently, on-site fare information is not available before boarding the buses.
3. Based upon a recent survey of bus riders conducted by the Marin County Transit District, 40% of survey respondents indicated they are Spanish-speaking; however, the provision of transit information at the transit center in Spanish is very limited.

Marin Airporter loading zone


County Shuttle Connection

Enclosed station waiting room

Physical Connections

The transit center is quite compact and busy, given that limited space is available to accommodate many uses. Future plans by Sonoma-Marin Area Rail Transit (SMART) consist of new commuter rail service with a station located between 3rd and 4th Streets, directly north of the transit center. Bus loading will continue at the transit center with additional bus loading at the rail station. The provision of rail service and development of the rail station will impact future operations. The new rail service is envisioned to begin roughly five years after voter passage of sales tax funding. Current issues include:

1. During the afternoon peak, arterials surrounding the transit center become quite congested and affect the bus' ability to exit/enter the facility. This especially impacts northbound buses. As a result, consideration should be given of a more direct northbound bus link. At present, northbound buses must use congested Irwin Street for access to Highway 101. It will be important to consider the use of existing rail right-of-way prior to the start of SMART rail service to from the transit center to Mission Street, thereby avoiding congestion on Irwin Street.
2. Private automobiles often illegally enter the bus transfer facility.
    - Bus-only signs at Third Street entrance are not readily visible and pavement markings to reinforce this signage are not used.
3. Bus loading capacity is limited because of limited bus curb lengths and pulse scheduling.
4. Passenger drop off area is not convenient or identified.
    - One-way streets surrounding the station make it difficult to use passenger drop-off area on Tamalpais Avenue; consequently cars use Hetherton Street and often block traffic and bus loading. Signs directing to drop-off area on Tamalpais Avenue are not provided.
5. Parking is remote and limited for park and ride patrons.

Amenities

Amenities at the San Rafael Transit Center includes a café which also sells GGT tickets, a dry cleaners which sells tickets for Airport Express shuttle to Oakland Airport, and an indoor waiting room with restroom facilities. Bus stop shelters and canopies with limited seating are provided at the bus bays. A Translink add fare machine and GGT direct phone are also provided.

1. Passengers are not protected from inclement weather at crossings between platforms.
2. Seating capacity for passengers is not adequate.

Heavy left turn movement from Third Street to Hetherton Street

'Do Not Enter' at entrance to terminal

Bus platforms and security booth

3. Security at San Rafael Transit Center has been addressed in part with the addition of a security guard and booth. Personal safety may continue to be a concern for some patrons especially during evening and night hours.

Scheduling

Currently, GGT operates on a 30-minute pulse with 5-minute dwell times except for Route 36. Similar pulse operates at Marin City. Route 36 operates at 30-minute headways but is scheduled at a 15-minute offset to the main pulse. Sonoma County Transit (SCT) operates one route daily on weekdays with southbound service in the AM peak and northbound service in the PM peak (Route 38) connecting Sonoma Valley to San Rafael Transit Center. It is closely coordinated for transfer to GGT Routes 26 and 80. The airport express shuttles do not specifically coordinate service with other buses and estimate that most of their patrons arrive and depart by car or taxi. Greyhound has only three buses daily to the transit center.

1. Because of the bus pulse schedule, the transit center is at maximum capacity. No more routes can be added without changes to the schedule.
2. GGT Routes 70/80 often operate above capacity leaving passengers behind. When this happens, backup buses are provided. Expanding service at peak times with buses offset to the pulse is being considered.
3. Congestion on Highway 101 complicates schedule coordination with trunk routes. New HOV lanes planned for Highway 101 may help alleviate congestion in the future. Real-time bus information will provide passengers with updated status of bus arrivals. Although bus arrival information cannot directly address congestion delays, it does serve to reduce passenger anxiety.
4. Schedule delays occur with Airport Express due to traffic. Passengers become concerned that they have missed the shuttle or that delays will cause them to miss flights.

Real-Time Information

Golden Gate Transit does not currently have an AVL (automatic vehicle locator) system but will begin work in the near future on an integrated AVL radio system that has been planned and funded. Therefore, passengers do not know when the next bus or shuttle is arriving or departing. Golden Gate Transit is slated to receive $3,500,000 in RM2 funds for the provision of real-time transit equipment. Once this project is underway, it will be possible to determine the priorities and timeline for real-time improvements.

Taxi loading zone

Telephones, information phones and Translink machine

Pedestrian crossing between platforms

The 'Last Mile'

The transit center is well located near key destinations, which provides numerous opportunities for "Last Mile" Services to enhance existing transit services, as described below.

1. Existing bicycle parking facilities are well-used and demand often exceeds capacity as evidenced by the number of bicycles locked to trees and poles. Space available for additional bicycle racks in the current location is limited. To maintain bicycle parking capacity, abandoned bicycles are monitored and removed. Bike lanes and/or routes leading to facility are not available.
2. Pedestrian links to the Canal District and to the high school across Irwin and Heatherton are less attractive than desired.
    - Connections from the transit center to Downtown San Rafael and other destinations within walking distance are not apparent. Wayfinding signage to/from transit center and Downtown, Canal District and Mission area is not available.
3. Taxi service is not always available during transit center hours of operation.
    - Taxi call phones and local cab company phone numbers are not provided at the taxi stand or transit information displays.

Bicycle racks

Golden Gate Route 23 loading zone

Bicyclist on Third Street to Transit Center

EL CERRITO DEL NORTE BART STATION

The transit hub task force site review was held on Wednesday May 18, 2005 at 7 AM. Representatives from transit operators and key stakeholder agencies were invited to attend including:

Representatives from:	In attendance
Golden Gate Transit	Yes
BART	Yes
AC Transit	Yes
Vallejo Transit	No
WestCAT	Yes
City of El Cerrito	Yes
East Bay Bicycle Coalition	Yes

The site review began with a short briefing on the project and a general discussion of how transit services operated at the station. This transit hub is one of two BART Stations located in the City of El Cerrito and serves as a local and regional bus transfer facility. Because of its proximity to highways I-80 and I-580, El Cerrito del Norte BART Station has regional bus connections to San Rafael on Golden Gate Transit, to Martinez and Hercules via WestCAT, and to Vallejo on Vallejo Transit. Local bus service to neighborhoods in El Cerrito and surrounding communities is provided by AC Transit. Bus service is available at three passenger platforms with a total of 18 bus bays. See Appendix B, Page B-2.

The El Cerrito del Norte BART Station is located on the Richmond-Fremont Line with direct service available to all destinations on that line. Additionally, direct service to San Francisco/Daly City is available until approximately 6 PM, Monday – Saturday. During weekday peak hours, this direct service is extended to Millbrae/SFO. Other destinations in the BART system require a transfer.

The following problems or issues were identified during the site review. The associated needs for improved transit connectivity are also included.

Wayfinding Signage

1. Patrons have difficulty finding the correct bus and bus loading location when making BART/bus and bus/bus transfers.
    - A comprehensive display of connection destination possibilities is not provided within the station center lobby and on both sides of the station. Only one station layout plan showing bus loading areas was found within the station.

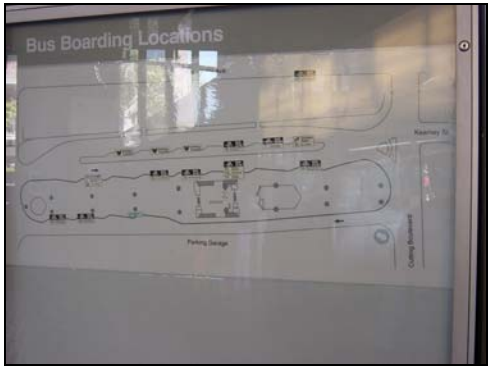
Task Force at El Cerrito del Norte BART Station

Station Paid Area

Bus Terminal from BART Platform

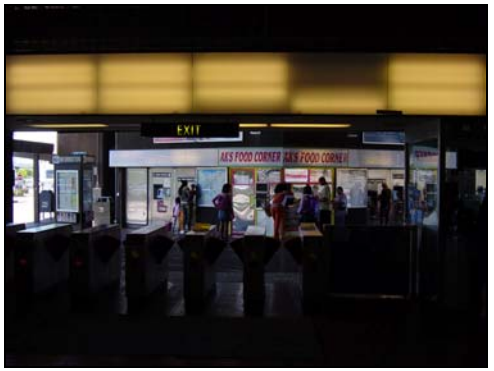
- Because of the number of transit operators at this facility, visible agency logo identification is lacking at bus stop locations.
- Better exit directions from the paid/ticket area of the BART station to connecting bus routes are needed.
- Beyond the paid/ticket area of the BART station, directional signage is needed to the various bus operators and bus stops.
- Northbound and southbound buses of the same route often load in different locations (e.g., AC Transit Route 72R), which can be confusing for customers. Clear signage including route direction and/or destination is not provided

2. Some patrons can not find the elevators.
3. Some signage is not ADA compliant because it is too high or the typeface is too small. In particular, the signage directing users to the accessible route to the parking garage is too high to be visible to wheelchair users and so low as to cause an obstruction for others.



Bus boarding display in center lobby is confusing

More visible bus operator identification is needed at bus stops



Need directions to bus routes at exit

Customer Use of Transit Information

1. Regional transit information is posted at a central location in the station but is not complete or up-to-date?
   - Regional transit information is needed including maps, destinations and schedules for service providers at this transit hub. It is important that this information be kept updated as schedule and route changes occur.
   - Information on how to obtain the most current information is not provided (i.e. '511' phone or information kiosk). A map of the transit center is not provided on the '511' website at 511.org with other schedule information. Maps showing the local and regional destinations are not available.

Physical Connections

1. The accessible route (for wheelchair passengers) between the station and the parking garage needs to be improved.
    - The sidewalk providing accessible access between the station and the parking garage for wheelchair passengers is bounded on the street side by large concrete bollards. This pathway also serves the southbound bus aisle and the paratransit stop. Although providing some protection from bus traffic, these bollards significantly narrow the functional width of the sidewalk. Although this sidewalk meets requirements specified by the Americans with Disabilities Act (ADA), wider usable sidewalk width would more comfortably accommodate pedestrian traffic including wheelchair users.
2. The routing for buses to the southbound bus aisle is circuitous.
    - Previous rerouting of southbound buses for the San Pablo Avenue Rapid Bus project was considered a success by AC Transit and bus passengers in reducing bus travel times. However, additional streamlining of the southbound routing should be considered. Perhaps this link can be made even more direct by routing buses along the eastside of the BART track right-of-way. This configuration might also serve to eliminate the Ohlone Greenway offset at Cutting Boulevard.
3. The ticket vending on south end blocks visibility between main station and bus loading areas.

Amenities

The El Cerrito del Norte BART Station has a snack bar in the ticketing area and restrooms in the paid area. Limited seating is provided at the bus stops along with bus shelters and canopies at the stops.

1. Bus shelters do not provide adequate protection from wind and rain.
2. Seating capacity for passengers is not adequate.
3. The large 'dead' space on the south side of the station between the bus platforms is currently filled with unused bike racks.
4. More visibility is needed between the station agent and the south side of the station.

Better organization of route information and schedules is needed

Sign is too high


Accessible pathway to parking garage and bus bays

Scheduling

Schedule coordination between buses and BART trains is not an issue at this transit hub because of the frequency of BART service. AC Transit is currently investigating the benefits of providing pulse schedule operations at this hub to facilitate bus-to-bus transfers. Information about the number or type of bus-to-bus transfers is not currently available. However, routes operated by WestCAT and Vallejo Transit cannot rely on timed transfers **with each other, BART or AC Transit** because of congestion on Highway I-80, even during off-peak hours. This congestion and ensuing delays are difficult to predict from day to day.

1. All bus service reliability and travel time are often adversely impacted by traffic on approaches to the BART station.
   - Congestion may be alleviated when HOV lanes on Highway I-80 are complete.
   - Real-time bus information will provide passengers with updated status of bus arrivals. Although bus arrival information does not directly address congestion delays, it does serve to eliminate passenger anxiety about when and if the bus will arrive.
2. Some transfers are not available during evening/weekend hours because of variable service headways and hours of operation. BART operates later in the evenings and on the weekends and more frequently than WestCat, Golden Gate Transit, Vallejo Transit and certain AC Transit routes. Therefore, passengers using BART during these times may need to use other means to complete their trip.

Real-Time Information

Real-time arrival times for the BART trains is provided on the BART platforms both with signage and as audible announcements. Real-time signs (NextBus signs) are located at the shelter for the AC Transit RAPID route 72R as a demonstration project. They are currently small and not in ideal locations.

The 'Last Mile'

The station is served by the Ohlone Greeway, a key bicycle/pedestrian path following the BART right-of-way. Bicycle racks and lockers provide bicycle parking although the demand for bicycle lockers exceeds the supply. Taxi service is available from a two-vehicle taxi stand directly adjacent to the station entrance. Additional taxis are generally staged off-site. One employee shuttle provides service to the station.

1. Information/maps of roadways and destinations in El Cerrito are not available for pedestrians and bicyclists leaving the station.
2. San Pablo Avenue is a barrier to both bicycle and pedestrian traffic.

NextBus sign for AC Transit Rapid Bus Route 72

AC Transit bus exiting station

Ohlone Greenway at station entrance

- Pedestrian crossings of San Pablo Avenue could be enhanced to allow better access to the businesses on the other side of San Pablo. The east-west pedestrian corridor through the station could be reinforced with an additional midblock crossing of San Pablo providing more direct access to the station and better links to the Ohlone Greenway and residential neighborhoods to the East.

3. Bicycle/pedestrian travel on the Ohlone Greenway can be enhanced.

   - Additional lighting and video surveillance and repair paving on the trail is needed.

4. It is difficult to find the shuttle loading area.

   - Berkens operates an employee shuttle to this station. Information about where to board and the shuttle destination is needed.

DUBLIN/PLEASANTON BART STATION

The transit hub task force site review was held on Thursday June 2, 2005 at 7 AM. Representatives from transit operators and key stakeholder agencies were invited to attend including:

Representatives from:	In attendance
BART	Yes
Livermore Amador Valley Transit Authority (LAVTA)	Yes
Modesto Area Express	No
Tri-Delta Transit	No
County Connection	No
San Joaquin Regional Transit	Yes
City of Dublin	No
City of Pleasanton	Yes
Alameda County Transportation Authority	Yes
Alameda County Congestion Management Agency	Yes
Hacienda Business Park	Yes
East Bay Bicycle Coalition	No

The site review began with a short briefing on the project and a general discussion of how transit services operated at the station. This transit hub is located at the terminus of the Dublin/Pleasanton – Daly City line and serves as a local and regional bus transfer facility. Direct BART service is available to San Francisco/Daly City with transfers required for other destinations in the BART system. Bus service is available at four passenger platforms; one platform is located at the south side of the station and three platforms are found on the north side. See Appendix B, Page B-3. Local bus service is provided by County Connection to locations in San Ramon, Dublin, and Danville and by Livermore Amador Valley Transit (Wheels), which provides connections to Pleasanton, Livermore, Dublin, and San Ramon including the Livermore and Pleasanton ACE Stations. Regional bus service is available from Stockton, Lathrop and Tracy via San Joaquin Regional Transit connects and from Modesto on Modesto Area Express. Amtrak Thruway bus service is also available to provide connection to Stockton and San Jose for the San Joaquin or Coast Starlight trains, respectively. Various shuttles provide service to major employers in the area including Providian, Charles Schwab, and Applied Bio Systems.

The following problems or issues were identified during the site review. The associated needs for improved transit connectivity are also included.

Dublin/Pleasanton BART Station

Walkway to southern bus platform

To BART Station from southern bus platform

Wayfinding Signage

1. It is difficult for passengers arriving by bus to find the BART station.
   - Directional signage to the BART station is needed to guide pedestrians from the bus stops and the remote parking areas to the station entrance.
2. It is difficult for patrons transferring to the buses/shuttles/taxis to find the correct loading area.
   - The main information board is located on the north side of the entry/exit way and is poorly lit. The information map itself is readable and appears to be easily updated (magnets for bus route numbers).
   - Connecting buses are located on both the north (Dublin side) and south (Pleasanton side) sides of the station – some quite a distance from the station entrance/exit. Directional signs on the overhead beam at the BART exit are too high and dark, and easy to miss.
   - Very minimal passenger information is provided along the north and south bus platforms including simple bus stop "flags" and individual bus route maps. The flags are difficult to read at a distance and information regarding locations of other bus stops is not provided. In addition, bus operator system maps and a station map showing the location of the bus stops are needed at each bus platform.
   - Logos for bus operators are not clearly displayed.
   - Directional maps of the bus transfer facility are not provided at locations along bus loading areas to facilitate bus-to-bus transfers.
   - Directional signage to the location of taxi, passenger drop-off/pick-up and shuttle stops is needed.

Bus facility location map

Bus stop directional signs are poorly located

Customer Use of Transit Information

1. Regional transit information is difficult to find, read and is not kept updated.
   - Although this station has local maps, the transit connection displays need to be better organized and responsive to the patrons' needs in order for them to easily identify the connecting bus to reach their destination.
   - Regional transit schedules are not kept updated and information on how to obtain the most current information is not provided (i.e. '511' phone or information kiosk). A map of the transit center is not provided on the '511' website at 511.org with other schedule information. Maps showing the local and regional destinations are not available.


Directions to station are needed from bus stops

- Better lighting is needed for the information board near the station attendant. Better identification is needed to identify it as the information center. Bus route system maps should be included in this display area.

Physical Connections

1. Bus loading areas are quite a distance from the BART station entrance; some of the bus bays to the south are more than 900 feet from the entrance.
   - As a next step, operators should consider the feasibility of relocating bus loading areas closer to the station entrance.
   - Continue passenger drop-offs at the BART station entrance as buses pass by. Consider also the practice of making a brief stop at the entrance to pick-up passengers at the station entrance for routes that already pass by the entrance ('load-and-go').
2. Paratransit loading and unloading causes congestion with other fixed routes attempting to drop passengers off at the station entrance.
   - Opportunities should be explored for better facilitating both paratransit and fixed route operations, including the possibility of relocating the paratransit loading area with better amenities.
3. Bus and shuttle drivers desire restroom facilities more conveniently located to the bus loading areas.
4. San Joaquin Transit (SMART) currently operates service to the Dublin/Pleasanton BART Station in the AM peak and returns to the Stockton area in the PM peak. To conserve fuel and minimize operations costs, SMART would like to layover buses at the BART station after the morning commute trips and shuttle drivers in smaller vehicles for the PM peak trips.

Amenities

Restrooms are located in the paid area of the station. Bus canopies and limited seating are provided at the bus stops.

1. Weather protection is inadequate at the bus loading areas and other pedestrian connections.
2. Seating capacity for passengers is not adequate.
3. The BART station itself is located in the center of the I-580 freeway. Consequently, the station entrance is located under the elevated freeway structure. This area below the freeway is dark even during daylight hours.

Paratransit loading and layover at station entrance

Station entrance under freeway needs additional lighting

Southern Bus Platforms

Scheduling

1. Transfers are not available during evening/weekend hours because of variable service headways and hours of operation. BART operates later in the evenings and on the weekends and more frequently than WHEELS, DART and County Connection. Therefore passengers using BART during these times may need to use other means to complete their trip.
    - Currently, County Connection weekend service is coordinated with BART and displays the BART times on their schedules. Wait time averages 5-8 minutes between the transit modes. However, there is a significant difference in the hours of operation between BART and County Connection service; BART runs trains past midnight and County Connection ends operation around 9-10 PM on Saturday and in the afternoon on Sunday).
    - Most of LAVTA routes are weekday only; three routes provide weekend service but only Route 10 operates on Saturday after 8 PM and on Sunday. On Saturday, Route 10 does coordinate with the last outbound BART trains but does not meet the last few inbound trains to Dublin/Pleasanton Station. On Sunday, Route 10 service ends well before the last BART trains arrive or depart.
    - LAVTA will be providing 24- hour (OWL) service on Route 10 with expected service to begin in December 2005; the schedule has not yet been determined but most likely will include hourly service. If OWL service on Route 10 proves successful, other high performing routes may also be considered for OWL service to help address the lack of evening bus service.
    - The last bus trip of the day is the most schedule critical connection; coordination between the connecting BART train and last bus is needed.
2. The station is very spread out and has long transfer walking distances. These long walking distances increase the amount of time required for a coordinated timed transfer operation. BART headways are short, so the key challenges are the long headways for some of the bus routes.

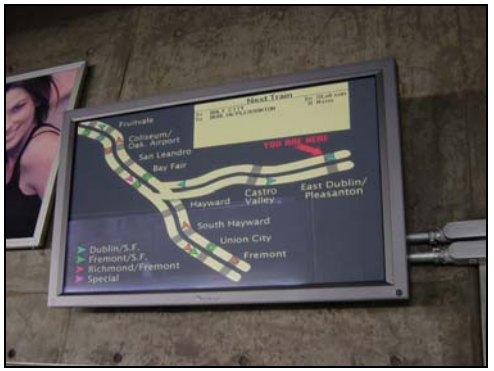
Real-Time Information

Real-time arrival times for the BART trains is provided on the BART platforms both with signage and as audible announcements. In addition, BART provides one NextTrain display at the entrance to the BART station; the current placement of the sign is high which is not ideal for passengers to read.

Currently, LAVTA has a fully functional AVL system. It is proposed to install two 16" signs at the BART exit, one sign for the Dublin bus bays and one sign for the Pleasanton bus bays to display real-time bus arrival and departure times. A kiosk with a touch-screen website is planned to be installed by the end of 2005.

Schwab Shuttle loading area

Taxi stand/passenger drop-off/shuttle stop



Minutes to next train (most important) should be much larger

The 'Last Mile'

Maps to local destinations are provided in the station but wayfinding signage is not. Bicycle parking is available at both bicycle racks and lockers. The demand for bicycle lockers greatly exceeds the available supply. The BART station is served by the Iron Horse Trail, which travels through the San Ramon Valley to connect with Pleasant Hill BART Station. However, signage to the trail is inconsistent. A taxi stand is provided although the location is clearly identified. The station is served by several shuttles; some are clearly signed with posted schedules while others are not.

Unused retail space – possible location for bikestation?

1. Bicycle connections to the BART station need to be improved, with some consideration given to:
   - Advocating for new bike trails on the Flood Control right-of-ways through a cooperative effort between the City of Pleasanton, the Flood Control District, Alameda County and Hacienda Business Park.
   - Improving connections and signage to Iron Horse Trail especially at crossing of Dublin Boulevard are needed.
   - Providing additional secure bicycle parking.
2. Pedestrian connection to the station is difficult especially from south side of station.
3. 'Last Mile' connections by taxi and shuttle need improvement.
   - Additional shuttle service by major employers and employment centers should be encouraged.
   - Directional signage to taxi and shuttle loading zones is needed.
   - Taxi call phone and local taxi company phone numbers are needed at taxi stop and/or transit information center.
   - Shuttle schedule and information phone numbers are needed at shuttle stop and/or transit information center.
   - Connections for employee of Hacienda Business Park with the BART station should be maintained and strengthened.
4. Pedestrian crossing at BART station entrance is dangerous because of low lighting levels.

SAN FRANCISCO FERRY TERMINAL/EMBARCADERO STATION

The transit hub task force site review was held on Wednesday May 25, 2005 at 7:30 AM. Representatives from transit operators and key stakeholder agencies were invited to attend including:

Representatives from:	In attendance
MTC	Yes
BART	Yes
Muni	Yes
Golden Gate Transit	Yes
Vallejo Transit	No
Alameda-Oakland Ferry	No
Harbor Bay Isle Ferry	No
Tiburon Ferry	No
City of San Francisco Dept of Parking & Traffic	Yes
San Francisco Bay Area Water Transportation Authority (WTA)	Yes
Port of San Francisco	No
Market Street Railway	No

The site review began with a short briefing on the project and a general discussion of how transit services operated at the station. Of the five prototype transit hubs, the San Francisco Ferry Terminal/Embarcadero Station is the only facility with ferry service. In addition, it is not a single contained station but is composed of two distinct stations (Ferry Terminal and Embarcadero BART/Muni Metro Station) connected by several blocks in urban Downtown San Francisco. Additional transit service is available on the street via the 'F' Line, Cable Car and various Muni bus routes. Amtrak Bus Thruway service is also available with connections to the Emeryville Amtrak Station. This transit hub carries a significant amount of daily weekday commuter traffic but also has heavy use by visitors and tourists during both weekdays and weekends. See Appendix B, Page B-4.

The following problems or issues were identified during the site review. The associated needs for improved transit connectivity are also included.

San Francisco Ferry Terminal from Embarcadero Station

Muni Metro entrance at Embarcadero Station


Golden Gate Ferry

Wayfinding Signage

Because of the size and variation of this transit hub, the preliminary findings about wayfinding and signage have been grouped by the following categories:

A. Arrivals/departures at the Ferry Terminal
B. Connection between the Ferry Terminal and Embarcadero Station
C. Arrivals/departures at the Embarcadero BART/Muni Metro Station

A. Arrivals/departures at the Ferry Terminal

1. Signage for passengers arriving into the Ferry Terminal by ferry is inadequate. Specifically:
   - The entrances into the ferry building from the dock need to be more clearly marked.
   - Large-scale directional signage is needed at the exit of each ferry pier to direct passengers to Ferry Terminal, Muni, BART, Amtrak, Cable Car, Market Street, Transbay Terminal and Taxis.
   - The delineation of pathways and overall directions between ferry loading areas and landside transportation facilities is poor; making the connection to other transit service is further complicated by vehicles parked/loading on the ferry gate apron area.
   - A hierarchy of information of the most popular connection possibilities via the ferry terminal is needed.
   - Within the ferry terminal building, comprehensive "what" information is needed to provide arriving passengers with the information about connection and destination possibilities.
   - Maps of transit connections and popular destinations should be included at the following locations:
     — A station area map is needed near the Amtrak bus stop showing locations of taxis, Muni, BART, Tranbay Terminal and ferries.
     — Create awareness of regional connection possibilities with displays at the Larkspur/Sausalito dock.
     — Signage is needed for arriving ferry passengers using the central exit aisle onto the Embarcadero.
     — Signage is needed for passengers arriving at Ferry Gate E.
2. When departing by ferry, it is difficult to find the correct loading area.

Not all Muni bus stops/routes are shown. Stations/stops could use MUNI and BART logos for reinforcement of identity.

Bicycle Parking at Ferry Terminal

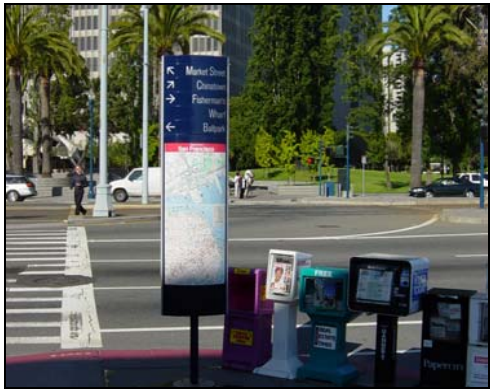
- Existing wayfinding signage to ferry gates lacks visual impact. Additional directional signage to the three ferry piers is needed for ferry-bound passengers.
- Gate identification is generic – better identification of ferry operators and destinations is needed.
- Sometimes it is difficult to determine which boat ferry passengers are queuing up for; signage would be helpful to help passenger find the correct queue.
- The current maps at the Ferry Terminal are a little out of date and some are not ideally located.

B. Connection between the Ferry Terminal and Embarcadero Station

1. Making connections between the ferries, Muni, BART and other destinations is not clearly explained with wayfinding signage.
   - On-street pedestrian-oriented directional signage between the ferry building and Embarcadero station is lacking.
   - The signage at the F Line stops does not clearly direct passengers where to board for Market Street, Fisherman's Wharf or the baseball stadium.
   - With the recent dispersement of Muni bus stops, it is more difficult for passengers to find their connecting Muni bus stop.

C. Arrivals/departures at the Embarcadero BART/Muni Metro Station

1. It is difficult to find the Embarcadero Station.
2. It is difficult to find the correct exits from Embarcadero Station to reach desired destinations.
   - The exit signage needs to be updated and simplified. For example, the Airporter signs are no longer accurate.
   - Consideration should be given to identify the many exits and BART/Metro gates with letters to facilitate greeters meetings and to advise passengers which gate to use to most easily get to their transfer or other destination.
   - Signage for passengers exiting the trains is needed to advise them which direction to turn for quickest up escalator exit – a la London "Way Out" signage.
   - Local area maps that provide the locations of nearby Muni bus stops and their routes are not provided.



Directions to connecting Muni bus stops are needed

Ferry directional signage is not clearly visible

Vallejo Ferry loading

3. It is difficult to differentiate between BART and/or Muni entrances.
    - At the common BART/Muni Metro ticket level, better signage would distinguish between Muni and BART entrances – Agency colors and logos could be used for this purpose.
4. It is difficult for passengers to determine where to board BART and Muni trains and how to make the transfer between BART and Muni.

Customer Use of Transit Information

1. Regional transit information and maps should be better coordinated and strategically located.
    - Regional transit information should include information on transit operators, schedules and destinations that they serve. A map of the transit hub with boarding locations for each transit operator as well as location of popular destinations should be included. This information should be consistent throughout the transit hub area, should be kept updated, and create awareness of regional connection possibilities.
    - Existing downtown and ferry vicinity maps in freestanding displays do not show all the Muni routes/stops in the vicinity of the ferry terminal.
    - The stations and stops shown on existing maps do not emphasize the agency "brands", e.g., Muni and BART logos.
    - Because of the variety of transit services available and the number of destinations served by this hub, the standard transit map might not be the best solution. Consider alternative transit destination locators such as a matrix with an alphabetized/categorized listing of destinations beyond walking distance from the station. This component would function like a mall directory with the Muni bus route numbers listed instead of addresses. Another idea is to grid the maps with a list of destinations below (like the Washington Metrorail area maps) with the added information of the Muni routes.
    - Consider providing some of the directional information on board the ferry boats, BART trains and Muni vehicles.
    - Access to regional transit information service on '511' is not provided.
    - Map of the transit center is not provided on-line with other schedule information.
2. Current transit schedules and routes are out of date.
3. In general, it is confusing to know where to buy tickets for ferries, BART and Muni. Golden Gate Transit sells tickets prior to boarding but other ferry operators sell single ride tickets on board. Where might a passenger purchase a multi-ride ferry ticket, a Muni passport (day or multi-day pass)

Area maps and connection information is needed at cable car terminus loading zone

A better organized and easily understood display of transit connections is needed

or even learn about them? At BART/Muni stations each operator has a booth, and there are 2 Transit Stores that sell tickets.

4. Passengers whose primary language is other than English may experience difficulties
   - Due to the extremely high volume of tourist traffic through the hub vicinity, signage recommendations should address the need to include other languages, and the utilization of international wayfinding icons and transit agency "brands" e.g. logos.

Physical Connections

1. Passengers are not protected from inclement weather when making connections between some facilities at this transit hub.
2. Currently, in order to transfer between BART and Muni Metro, a passenger must go up to concourse level and back down. (Improvements to the BART/Muni Metro transfer connections are planned as part of RM2.).
3. Pedestrian connections between transit hub facilities need to be more direct and convenient.

Amenities

The San Francisco Ferry Terminal/Embarcadero Station covers several blocks in downtown San Francisco. Consequently there are a variety of shops, restaurants and other services for the commuter and tourist transit passenger. The Ferry Terminal, a popular tourist destination itself, is housed in a recently restored historic building which was developed with an indoor mall of restaurants and specialty shops. Restrooms facilities are available as well as an information and ticket booth for ferry and other transit information. GGT Ferry also has a ticket booth at the entrance to the loading dock for the Larkspur and Sausalito ferries. Amtrak has a small waiting room and ticket booth in a building adjacent to the Ferry Terminal. The Embarcadero Station includes a flower stand, Muni/BART ticket booths, and bikestation.

1. Weather protection is not available at some facilities for waiting passengers.
2. Passengers do not know where to catch a taxi. For Amtrak passengers, many arriving with luggage, the availability or proximity of taxi service may be an important consideration.

City pedestrian wayfinding signs in the vicinity of Embarcadero Station

Better agency identification is needed to distinguish between BART and Muni service

Scheduling

Aside from Amtrak buses, the service frequencies of the major ground transit services (BART and Muni Metro, buses, cable car and 'F' line) do not seem to require special schedule coordination. The walking distances required between transit services also makes schedule coordination difficult to manage. The ferries run less frequently, often with one hour or greater headways. According to the WTA, ferry-to-ferry transfers rarely occur so that timed-transfers between ferries is not considered important.

Real-Time Information

Real-time arrival times for the BART trains is provided on the BART platform both with signage and as audible announcements. Similarly, real-time arrival times for Muni Metro are available on the Muni platform with both signage and audible announcements. In addition, a NextTrain display is installed on one of the Muni agent booths on the main level of the Embarcadero station. The sign includes a map of the whole city with the location of light rail trains throughout the system. The actual NextTrain portion of the sign is small and difficult to read from any distance. A single-line digital sign is also posted on the station agent booth with rotating display of next train arrivals. Real-time information is not available for cable car, ferry, streetcar or bus service.

In the future, the ferry gates will have real-time arrival/departure display signs similar to those on BART platforms. Similar signs will be installed at the gates in the Larkspur, Vallejo, Alameda, and Oakland ferry terminals. In addition, two large plasma screen signs displaying overall real-time schedule information for multiple routes are planned to be installed in central locations at the hub. The central plasma screen signs can toggle between displaying commuter-specific schedule information during weekdays, and more tourist-oriented information during weekends.

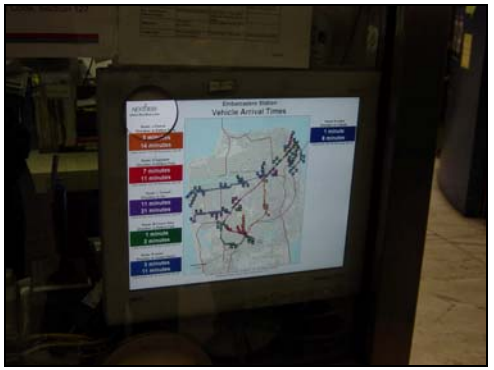
The 'Last Mile'

Bicycle parking is available at racks outside the Ferry Terminal or at the Embarcadero Bike Station. Bicycle access to the transit hub is available from bike lanes on Embarcadero and Folsom/Howard Streets. The location of taxi service is not identified, but is available at the Embarcadero Hyatt Hotel. The transit hub is served by one shuttle but no signage or schedule information is provided. Opportunities exist to:

1. Increase bicycling opportunities, especially through the promotion of the Embarcadero Bike Station.
2. Improve connections with taxi service.
3. Make pedestrian connections more convenient

Crosswalk from Ferry Terminal to Embarcadero Station

Signage at exit from Embarcadero Station



Muni NextTrain map and signage at agent's booth

SAN JOSE DIRIDON STATION

The transit hub task force site review was held on Thursday May 26, 2005 at 7 AM. Representatives from transit operators and key stakeholder agencies were invited to attend including:

Representatives from:	In attendance
VTA	Yes
SamTrans	Yes
Caltrain	Yes
Caltrans Division of Rail	No
Caltrans High Speed Rail	No
Amtrak	No
BART/Capitol Corridor	No
Santa Cruz MTD	No
ACE	No
City of San Jose DOT	Yes
HP Pavilion/SJ Arena	No

The site review began with a short briefing on the project and a general discussion of how transit services operated at the station. Of the five prototype transit hubs, the San Jose Diridon Station is the only facility with conventional commuter rail service. Amtrak's Capitol Corridor and Coast Starlight both serve the station as well as the Altamont Commuter Express (ACE) trains and Caltrain. Local and regional bus service is also available at the station. Santa Clara Valley Transportation Authority (VTA) buses provide service to locations in Santa Clara County including the DASH shuttle to Downtown San Jose and the Light Rail system. Regional bus service is available to Santa Cruz on Santa Cruz Metropolitan Transit District's Highway 17 Shuttle and Amtrak's Bus Thruway service to Stockton and connection to the San Joaquin trains. Various employer shuttles also provide service to the station. See Appendix B, Page B-5.

The following problems or issues were identified during the site review. The associated needs for improved transit connectivity are also included.

San Jose Diridon Station

Diridon Station bus terminal

ACE commuter train

Wayfinding Signage

1. The San Jose Diridon Station does not have a clear identity to passengers arriving from surrounding roadways, by bus or by train. In fact, prior to being named as Diridon Station, this station was known as Cahill Station. In some transit information, it is still referred to as Cahill Station or Diridon Station or San Jose Station.
    - The station name should be made consistent among transit operators and providers of transit information.
    - Plans have been developed for transit-oriented development around the depot building. As these plans progress, the need for a bolder marquee sign on Santa Clara Street will increase.
    - Standard traffic wayfinding signage for Amtrak stations is absent and should be provided.
2. Circulation within the station is confusing
    - The audio information at the transit center, in the depot and on the platforms needs to be enhanced.
    - Near the top of the subway after exiting the staffed ticket area better signage is needed to direct people to the accessible path to the elevator.
    - Signs identifying the ticket validation machines for Translink and Caltrain need to be made more visible.
    - The opening of the Vasona light rail transit (LRT) station this summer will necessitate the need for guide signage through the main depot building to show path to the LRT station. This signage will be especially important at the bottom of the passenger rail platform ramps to direct LRT passengers east and all others west.
    - Above the platform exits, the term "Subway" could be confusing, especially after LRT service begins.
3. It is difficult for passengers to find exact location for bus/shuttle/taxi loading and location of surrounding destinations.
    - Directional signage is needed near the top of the depot building arrivals ramp directing passengers to buses and Arena (straight) and taxis (right).
    - Map of the transit center is needed including the location of bus stops, shuttle stops and taxi loading area. This map should also provide the location of HP Pavilion, Route 22 stop on Santa Clara Avenue and other local destinations.

Signage from rail platform to station


Transit connection information needs organization


Example of Information Kiosk Signage at Caltrain's 4th/Townsend Station, San Francisco

- Bus stop "flags" should be more visible including route numbers and agency logos.
- The private shuttle stops should be identified including shuttle destination and schedule. A pole already exists at the stop location.

4. It is difficult for passengers to find the desired train.
   - Track platform identification numbers in the subway should be larger and the feasibility/desirability of adding variable message signs at each portal to show train using the platform should be considered.
   - Currently, a major wayfinding problem at this station is identifying on which track your train is boarding. Signage is needed to include the train destination, time of departure, and track number.
   - The anteroom between the main station and the underpass to the train platforms is a strategic decision point and should be better organized to provide directional, ticket purchase, ticket validation and train schedule information. Improved lighting in this area is also needed.
   - Larger, bolder track identification is needed on each platform.

Subway from rail tracks to station

Better direction to trains is needed

Customer Use of Transit Information

1. Regional transit information is difficult to find and understand, and not always complete and up-to-date.
   - Transit connection information is disaggregated over five display panels leading to the bus stop area. This information should be organized, easier to understand, and more responsive to the user's connecting informational needs. Clear identification as a source of regional transit information is needed. Station map, map of bus and rail service and a local map with popular destinations in the neighborhood should be provided.
   - Regional transit schedules are not kept updated and information on how to obtain the most current information is not provided (i.e. '511' phone or information kiosk). A map of the transit center is not provided on the '511' website at 511.org with other schedule information. Maps showing the local and regional destinations are not available.
2. Ticket information and sales is confusing.
   - The staffed ticketing facility identifies separate windows for Amtrak and for Caltrain – are they separate? Clarification is needed to provide information regarding purchasing of ACE tickets and Capitol Corridor tickets.

- VTA bus passes and maps are not currently available at the station.
- Ticket purchases and information for passengers arriving/departing on Vasona LRT service will be needed once LRT service begins.
- Ticket purchase and validation machines are needed on train platforms.

Physical Connections

1. The DASH shuttle appears to be the most heavily utilized connection for rail passengers, but its current stop is not the closest to the depot, nor well signed or weather protected. Consideration should be given to relocating the DASH stop.
2. A more convenient boarding location for the weekend Tamien shuttle stop is needed.
3. The wheelchair lift for accessible access from the depot to the underpass for train platform access is out-of-service and should be repaired.

Amenities

Amenities at the San Jose Diridon Station include a snack shop, restrooms and indoor waiting area. In addition, there is a ticket/information booth for purchase of train tickets.

1. The taxi loading zone is not protected from the weather.
2. Weather protection is not provided for private shuttles, northbound route 22 on Santa Clara Street and Highway 17 Shuttle.
3. Seating capacity for passengers is not adequate.

Scheduling

1. Future VTA LRT anticipates transfer/scheduling difficulties with Caltrain. Single track segments (2 in Campbell and 1 in Mountain View) make the LRT schedule inflexible so that some trains during midday running at 30-minute headways will just miss Caltrain which is also running at 30 minute headways.
   - Off-peak schedule coordination should require no more than a 15 wait for transferring passengers.
   - Consider track-sharing with freight line in single track segments so that NB/SB trains can travel at the same time
   - Consider future possibility of acquiring freight track to convert to LRT track.

DASH shuttle stop

Real-time arrival information on platform


Real-time signs at entrance to subway

Real-Time Information

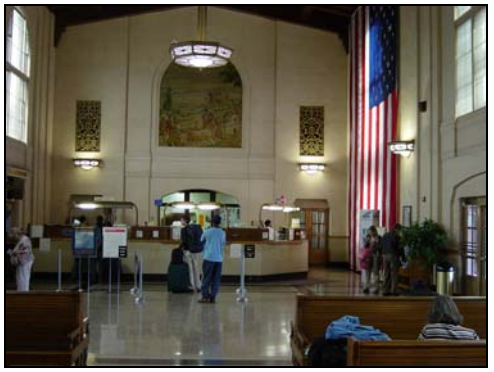
Currently there are four real-time signs at the station. Two real-time signs are located above the ticket machines, directly to the left prior to the ramp that leads to the pedestrian tunnel; this location is not highly visible. Another two signs are located at the entrance to the pedestrian tunnel. NextTrain signs are also located on the train platforms. In addition, an Amtrak Capital Corridor real-time sign at the southeast end of the bus bays near the entrance of the depot building. Real-time signage is being investigated for the new Vasona LRT line.

The 'Last Mile'

Bicycle parking is provided with bicycle racks and lockers. Several shuttles serve the station; some signs and schedules are posted. Taxi service is available directly outside the main station entrance.

1. Pedestrian connections between the station and surrounding neighborhood need improvement.
    - Directions are needed to the safe pedestrian walking route, which is located on the opposite side of Cahill Street. From the side exit of the station perhaps this directional sign could be located on the back side of the Amtrak sign.
    - The pedestrian walkway to H.P. Pavilion and in the direction of downtown San Jose needs better signage to possible destinations perhaps with the use of banners, signs and other brightly colored wayfinding materials that promote local facilities and culture within a mile of the station.
    - Pedestrian-scale lighting is needed on Cahill Street
    - Provide pedestrian connections to new residential areas to the west of the new light rail station. Perhaps the City of San Jose would consider preparing a pedestrian plan for the downtown area as part of their vision for the Diridon Station.
2. Bicycle connections between the station and the surrounding neighborhood need improvement.
    - Directional signage is needed to direct bicyclists to bikeway facilities and to destinations in the station area. Signage to bicycle parking areas are also needed.
    - Additional secure bicycle parking is needed at the station with the possible use of on-demand locker facilities or a bikestation.
3. Flexible 'Last Mile' travel options are needed and can potentially be provided with a car-share program at the station

Bicycle parking



Ticket counter

Bus stop for Highway 17 Express

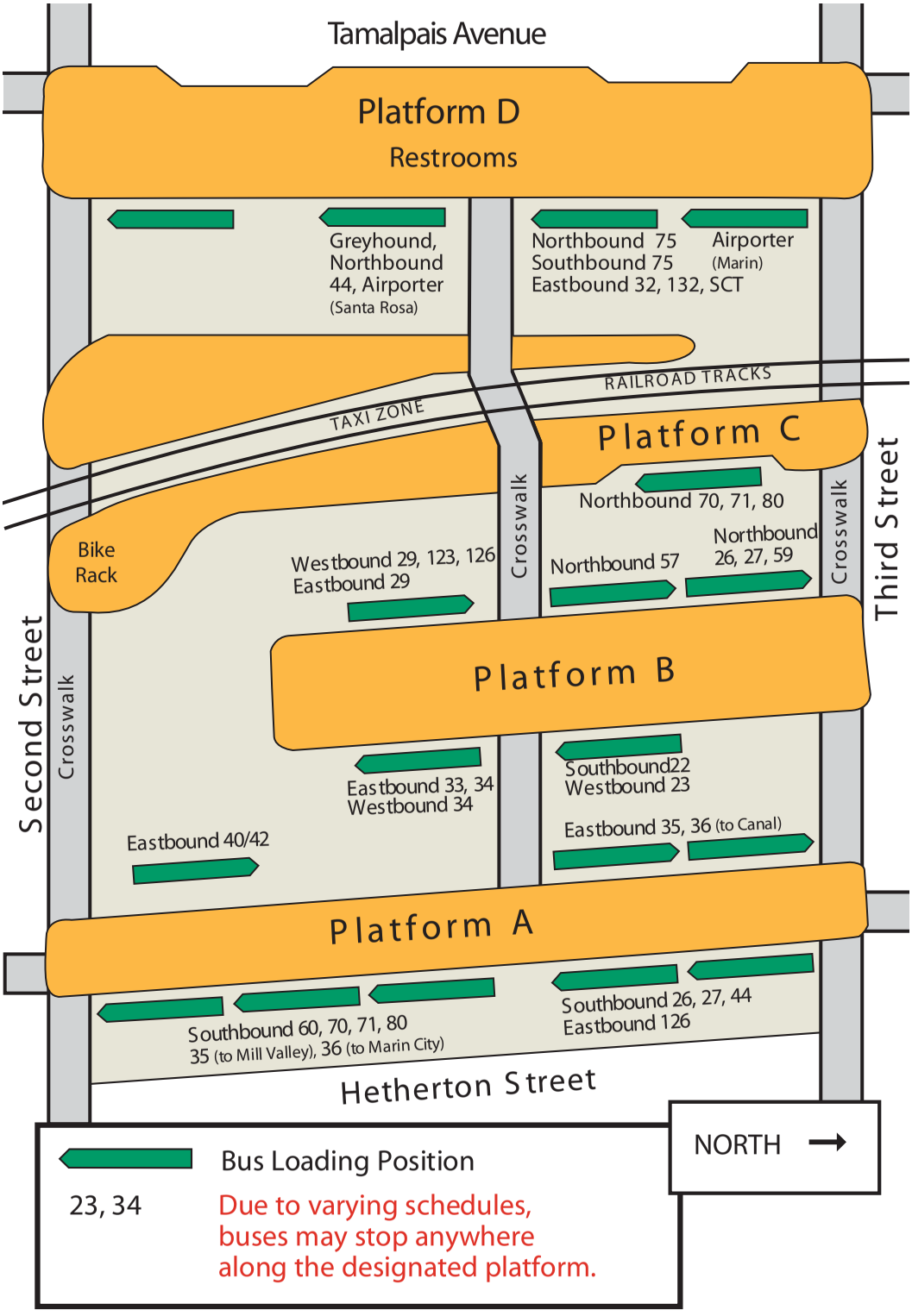
MTC Transit Connectivity Study

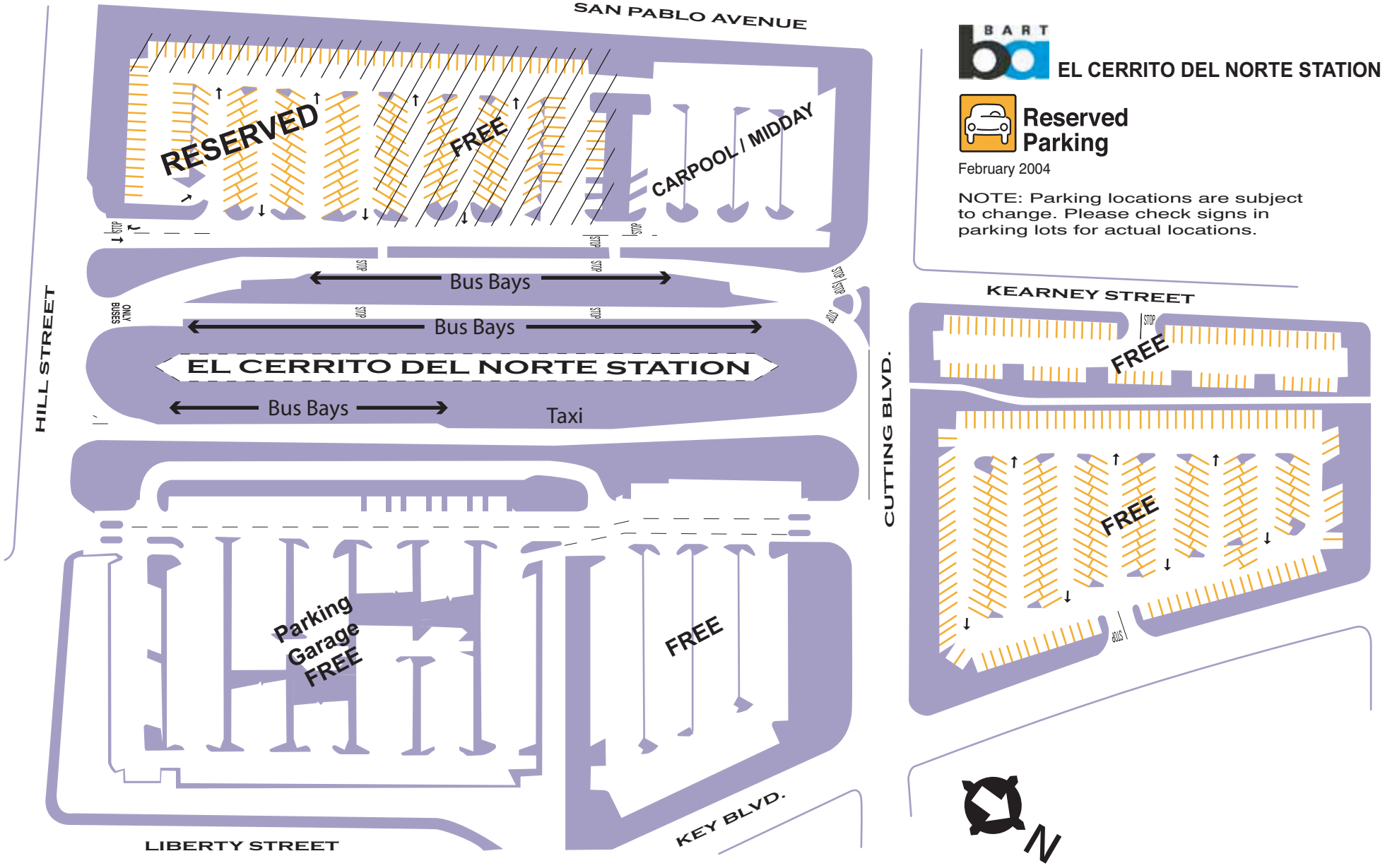
Technical Memorandum 3A:
Results of the Prototype Transit Hub Site Reviews

APPENDIX B

Transit Hub Maps

San Rafael Transit Center Map
(C. Paul Bettini Transit Center)





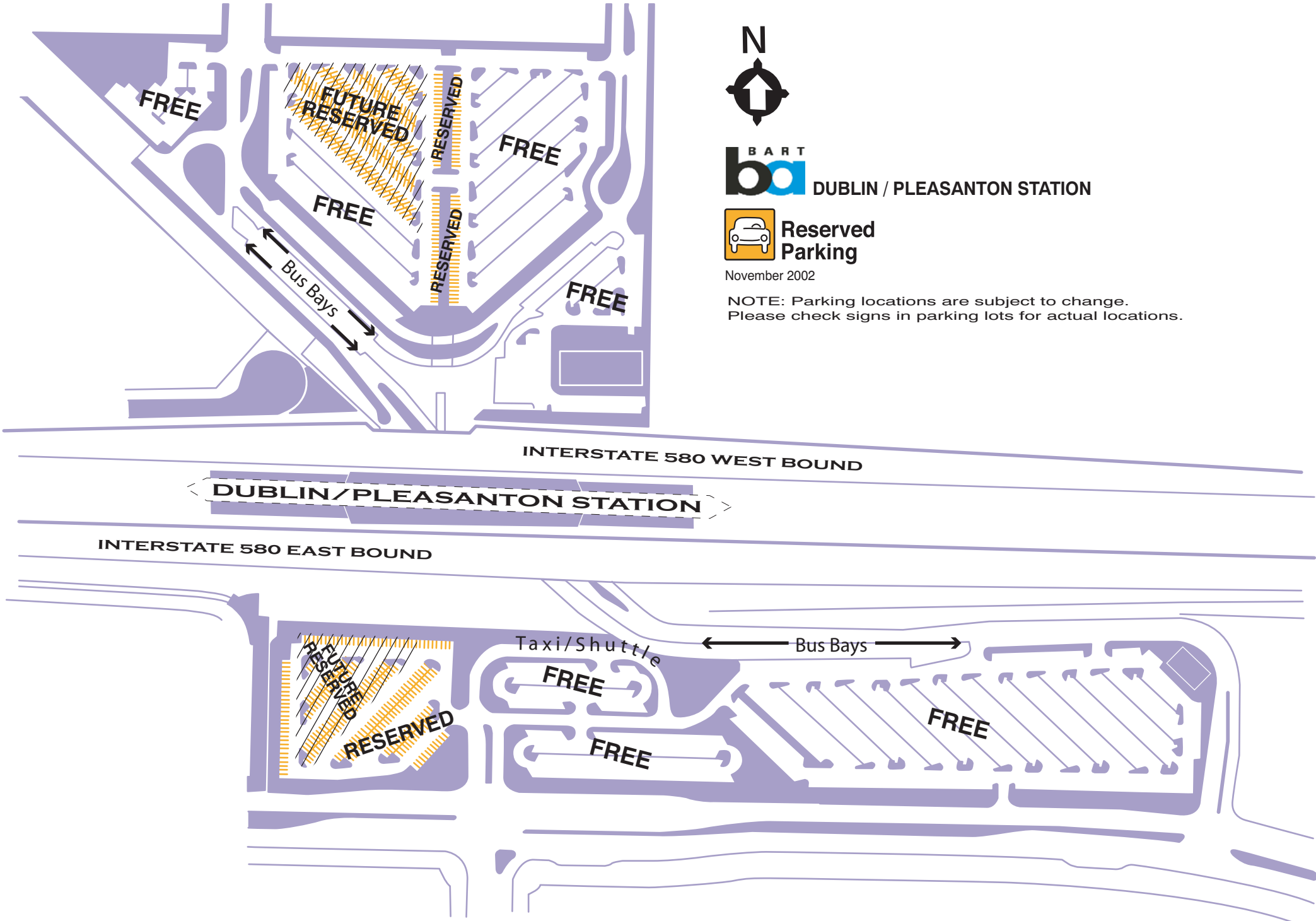
BART

EL CERRITO DEL NORTE STATION

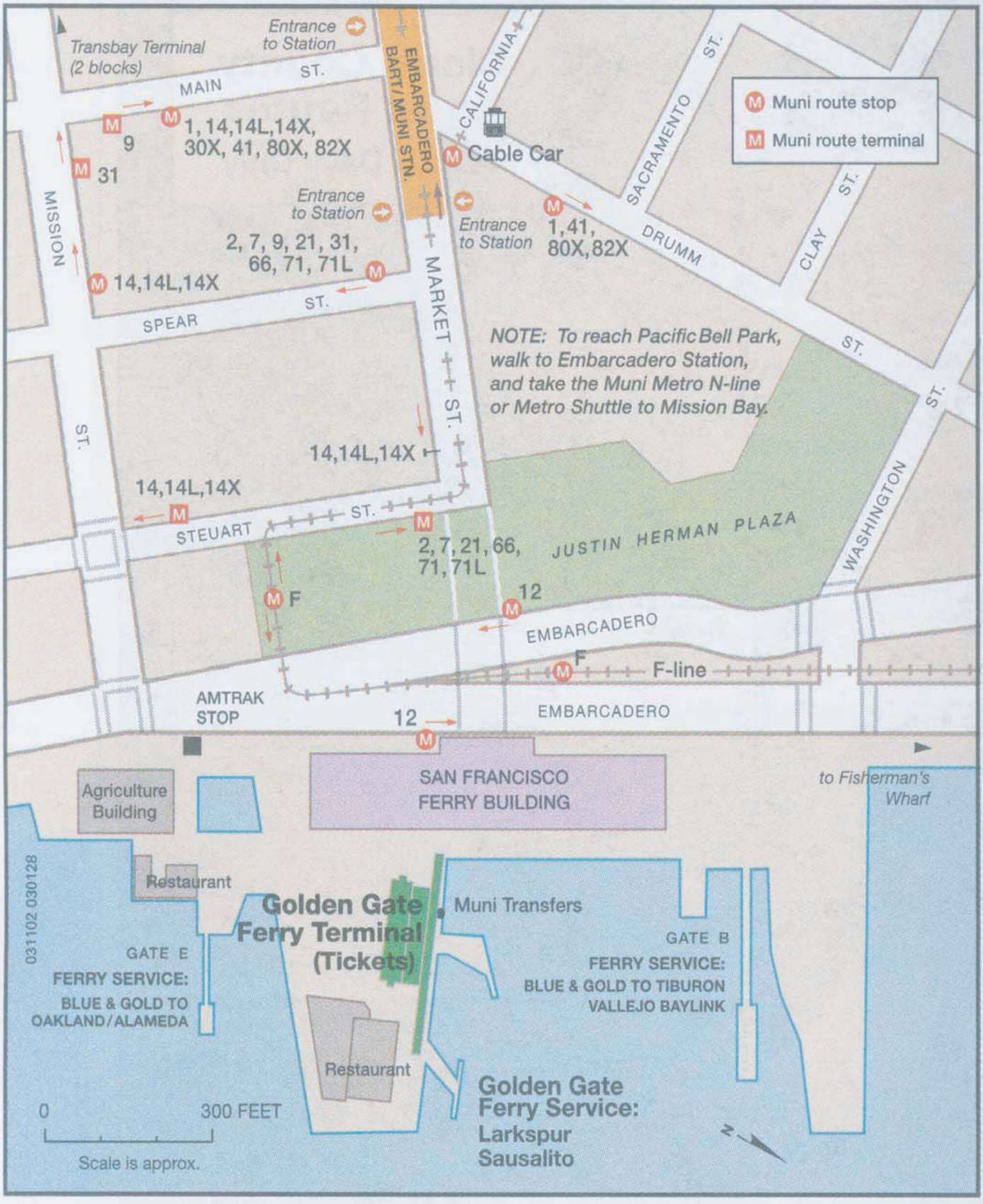
Reserved Parking

February 2004

NOTE: Parking locations are subject to change. Please check signs in parking lots for actual locations.


N
BART
DUBLIN / PLEASANTON STATION
Reserved Parking
November 2002
NOTE: Parking locations are subject to change.
Please check signs in parking lots for actual locations.
FREE
FUTURE RESERVED
RESERVED
FREE
FREE
RESERVED
Bus Bays
FREE
INTERSTATE 580 WEST BOUND
DUBLIN/PLEASANTON STATION
INTERSTATE 580 EAST BOUND
Taxi/Shuttle
Bus Bays
FUTURE RESERVED
RESERVED
FREE
FREE
FREE

Golden Gate San Francisco Ferry Terminal



San Jose
Diridon Transit Center JUL 4 2005